

In the Claims:

Claims 1-21 (Canceled).

22. (Previously Presented) An optical imaging device, comprising:
at least one system diaphragm, the system diaphragm comprising a multiplicity of mobile plates, each mobile plate is rotatably mounted on a pivot axis, wherein each pivot axis extends through a center of curvature (C) of a sphere, and wherein the sphere is defined as a single spherical surface in which the mobile plates move relative to one another.

Claim 23 (Canceled).

24. (Previously Presented) The optical imaging device as claimed in claim 22, further comprising an additional plate arranged mobile in an overlapping fashion with the multiplicity of mobile plates, the additional plate and the multiplicity of mobile plates comprising two different spherical surfaces whose centers of curvature (C) are identical.

25. (Previously Presented) The optical imaging device as claimed in claim 24, wherein the two different spherical surfaces have a mutual separation A of a few millimeters, preferably $A < 1$ mm.

26. (Previously presented) The optical imaging device as claimed in claim 22, wherein the plates have a high stiffness.

27. (Previously Presented) The optical imaging device as claimed in claim 22, wherein the plates are each rotationally mounted on the pivot axis by means of solid state articulations in order to rotate the plates.

28. (Previously presented) The optical imaging device as claimed in claim 22, wherein the plates are movable by means of a drive ring, the drive ring being mounted rotatably about an optical axis via solid state articulations.

29. (Previously presented) The optical imaging device as claimed in claim 28, wherein the solid state articulations are designed as solid state articulations which are radially stiff and soft in the rotation direction.

30. (Previously presented) The optical imaging device as claimed in claim 28, wherein the drive ring is respectively connected to a plate via a drive element.

31. (Previously presented) The optical imaging device as claimed in claim 30, wherein the drive element is connected to the drive ring via a solid state articulation.

32. (Previously presented) The optical imaging device as claimed in claim 28, wherein the drive ring is monolithic with the drive element.

33. (Previously presented) The optical imaging device as claimed in claim 28, wherein the drive ring is formed by a material which has a high stability under alternating load.

34. (Previously presented) The optical imaging device as claimed in claim 22, wherein a drive unit for moving the plates is arranged outside a gas space (G).

35. (Previously Presented) The optical imaging device as claimed in claim 22, wherein rotational bearings are aligned with the pivot axes of the plates and are respectively suspended in a diaphragm, the pivot axes of the plates being alignable with the center of curvature (C).

36. (Previously Presented) The optical imaging device as claimed in claim 35, wherein control members are provided for aligning the pivot axes.

37. (Previously Presented) The optical imaging device as claimed in claim 35, wherein the rotational bearings are respectively suspended on a solid state articulation.

38. (Previously presented) The optical imaging device as claimed in claim 37, wherein the solid state articulation is designed as a quadruple articulation.

39. (Previously Presented) The optical imaging device as claimed in claim 35, wherein tactile or optical measuring methods are provided for measurement when aligning pivot axes of the plates.

40. (Previously Presented) A variable system diaphragm for a microlithographic projection exposure apparatus having a multiplicity of plates held in a mobile fashion by means of solid state articulations; and

wherein each mobile plate is rotatably mounted on a pivot axis defined by the solid state articulations, wherein each pivot axis extends through a center of curvature (C) of a sphere, and wherein the sphere is defined as a single spherical surface in which the mobile plates move relative to one another.

41. (Previously presented) The variable system diaphragm as claimed in claim 40, wherein the plates are mounted rotationally by the solid state articulations.

42. (Previously Presented) A variable system diaphragm having a multiplicity of mobile plates, the plates having a spherical curvature and being rotationally mounted, rotational bearing axes of the plates being aligned with a center of curvature (C) of a sphere, and the sphere determining a single surface on which the plates are mobile relative to one another.

43. (Previously Presented) The variable system diaphragm as claimed in claim 42, further comprising an additional plate arranged mobile in an overlapping fashion with the multiplicity of mobile plates, the additional plate and the multiplicity of mobile plates comprising two different spherical surfaces whose centers of curvature (C) are identical.

44. (Previously Presented) The diaphragm as claimed in claim 43, wherein the two different spherical surfaces have a mutual separation A of a few millimeters, preferably $A < 1$ mm.

45. (Previously Presented) A projection objective in semiconductor lithography having optical elements, at least one variable system diaphragm for a microlithographic projection exposure apparatus being provided for introduction into a concave surface of an optical element, the diaphragm following a curved surface; and

wherein the diaphragm comprises a plurality of mobile plates, each mobile plate is rotatably mounted on a pivot axis, wherein each pivot axis extends through a center of curvature (C) of a sphere, and wherein the sphere is defined as a single spherical surface in which the mobile plates move relative to one another.

46. (Previously presented) The projection objective as claimed in claim 45, wherein the diaphragm follows a spherically curved surface.

Claims 47-48 (Canceled).

49. (Previously Presented) The projection objective as claimed in claim 45, further comprising an additional plate arranged mobile in an overlapping fashion with the plurality of mobile plates, the additional plate and the plurality of mobile plates comprising two different spherical surfaces whose centers of curvature (C) are identical.

50. (Previously presented) The projection objective as claimed in claim 45, wherein the plates are mounted rotationally by solid state articulations.

51. (Previously Presented) The optical imaging device as claimed in claim 22, wherein the pivot axis for each mobile plate extends through the mobile plate.

52. (Previously Presented) The optical imaging device as claimed in claim 22, wherein the mobile plates are configured to move between a closed position and an opened position, and wherein the configuration provides each mobile plate to be spaced from each other mobile plate during the movement between the closed and opened positions.

53. (Previously Presented) The optical imaging device as claimed in claim 22, wherein the mobile plates are configured to move between a closed position and an opened position, and wherein the configuration provides each mobile plate to move between the closed and opened positions without one mobile plate contacting any other mobile plate.

54. (Previously Presented) The optical imaging device as claimed in claim 22, wherein the optical imaging device comprises an objective for semiconductor lithography.

55. (Previously Presented) An optical imaging device comprising:
at least one system diaphragm, the system diaphragm comprising a
multiplicity of mobile plates, each mobile plate is rotatably mounted on a
pivot axis, wherein the pivot axis extends through a center of curvature (C)
of a sphere, and wherein the sphere is defined as a surface in which the
mobile plates move relative to one another; and

wherein at least two of the mobile plates are arranged to rotate on
respective pivot axes in an overlapping configuration on two different
spherical surfaces, the two different spherical surfaces having an identical
center of curvature (C).

56. (Previously Presented) The optical imaging device as claimed in
claim 55, wherein the two different spherical surfaces are separated by a
spatial distance ranging from less than 1 mm to a few millimeters.

57. (Previously Presented) An optical imaging device, in particular
an objective for semiconductor lithography, having at least one system
diaphragm, the system diaphragm comprising a multiplicity of mobile plates
which are rotatably mounted, wherein the plates have a spherical curvature;
and

wherein the mobile plates are movable by means of a drive ring, the
drive ring being mounted rotatably about an optical axis via solid state
articulations.

58. (Currently amended) An optical imaging device, in particular an objective for semiconductor lithography, having at least one system diaphragm, the system diaphragm comprising a multiplicity of mobile plates which are rotatably mounted, wherein the plates have a spherical curvature; and

wherein a drive unit for moving the plates is arranged outside a gas space (G); and

wherein the multiplicity of the mobile plates is arranged inside the gas space (G).

Claims 59-60 (Canceled).

61. (Previously Presented) An optical imaging device comprising a microlithographic projection objective, the device comprising:

at least one system diaphragm, the system diaphragm comprising a multiplicity of mobile plates which are rotatably mounted, wherein the plates have a spherical curvature;

wherein a drive unit for moving the plates is arranged outside a gas space (G); and

wherein at least one of the multiplicity of the mobile plates is arranged inside the gas space (G).

62. (New) An optical imaging device, in particular an objective for semiconductor lithography, having at least one system diaphragm, the system diaphragm comprising a multiplicity of mobile plates which are rotatably mounted, wherein the plates have a spherical curvature;

wherein a drive unit for moving the plates is arranged outside a gas space (G); and

wherein the at least one system diaphragm is arranged inside the gas space (G).